

AMSAT News Service Weekly Bulletins

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ANS-245 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 245.01

>From AMSAT HQ KENSINGTON, MD.

September 2, 2018

To All RADIO AMATEURS

BID: \$ANS-245.01

DMR Station QRM's A0-92 Uplink

On August 27th, AMSAT Vice President-Operations Drew Glasbrenner, K04MA, noted:

"Recently there has been a DMR signal QRM'ing the A0-92 uplink on 435.350 or close by. Hotspots, repeaters, terrestrial simplex (anything not satellite) should not be in 145.8-146.0 or 435-438 by international bandplan. Please QSY these radios ASAP. Please share to DMR, D-star, Fusion, P25 groups and similar, thank you!"

For amateur operators in the U.S., FCC Part 97 has a bit to say about the way we should operate in the 145.8-146.0 and 435-438 MHz amateur satellite subbands. Regulations in many other countries are not as detailed as those established by the FCC on how we should operate on different frequencies and bands. This includes where hotspots and similar systems used for digital voice modes (i.e., DMR, D-Star, C4FM/Fusion) and other technologies like EchoLink and IRLP, should operate.

Auxiliary stations are defined at 97.3(a)(7):

"An amateur station, other than in a message forwarding system, that is transmitting communications point-to-point within a system of cooperating amateur stations."

This definition includes "remote bases;" the nodes for systems like EchoLink and IRLP; and hotspots used for digital-voice modes like D-Star, DMR, and Fusion/C4FM (among others); as well as stations using these hotspots and nodes. Auxiliary stations are not allowed in the 145.8-146.0 and 435-438 MHz satellite subbands per 97.201(b) - among other subbands in the 2m and 70cm amateur bands.

Repeaters are defined at 97.3(a)(40) as:

"Repeater. An amateur station that simultaneously retransmits the transmission of another amateur station on a different channel or channels."

Since most hotspots are operating on a single frequency, they would not qualify as a repeater. Even if the hotspot operates like a repeater as defined above, repeaters are not permitted to use 145.5-146.0 MHz and 435-438 MHz per 97.205(b).

Beyond these two sections, Part 97 also has 97.101(a): "In all respects not specifically covered by FCC Rules each amateur station must be operated in accordance with good engineering and good amateur practice."

Whether the hotspot is interfering with a satellite downlink in a particular area, or it is interfering with the satellite uplink affecting a much larger area, this would not be good amateur practice.

In addition to subbands where hotspots are not permitted, 97.101(b) is also relevant:

"Each station licensee and each control operator must cooperate in selecting transmitting channels and in making the most effective use of the amateur service frequencies. No frequency will be assigned for the exclusive use of any station."

Frequencies used by satellites are usually incapable of being changed, and have been registered with a regulator like the FCC and the ITU.

Hotspots are usually frequency-agile, and the frequencies used by those systems can be changed to avoid potential interference to satellites and other stations.

And all of this is in addition to local bandplans, which may already have provisions for hotspots or simplex nodes.

[ANS thanks Patrick Stoddard, WD9EWK, for the above information.]

AMSAT Announces New Store on Zazzle

AMSAT is pleased to announce a new storefront on Zazzle. Currently, we have several products available with the AMSAT logo, including t-shirts, hooded sweatshirts, mugs, mousepads, and stickers. Colors and styles for each product are fully customizable. Even kids sizes and athletic wear are available through the customization options. Now you can outfit the whole family in AMSAT logo gear!

25% of the purchase price of each product goes towards Keeping Amateur Radio in Space. The storefront can be accessed at

https://www.zazzle.com/amsat_gear

Stay tuned as we add more products to the storefront over the coming days and weeks.

[ANS thanks Paul Stoetzer the above information.]

AMSAT Rover Award Updates

The AMSAT Rover award is granted to stations who achieve a combined 25 points using any combination of the roving achievements posted at:

<https://www.amsat.org/amsat-rover-award/>

Since the last update in ANS-210, the following awards have been announced:

Award	Call	Date Issued
028	K4FTP	30 Jul 2018
029	KB2YSI	15 Aug 2018
030	N3CRT	17 Aug 2018
031	N2WLS	19 Aug 2018
032	K2MTS	22 Aug 2018

[ANS thanks Bruce Paige, KK5DO, AMSAT Director Contests and Awards for the above information]

A073/FUNcube-1 Entering a Further Period of Full Sunlight

A073/FUNcube-1 has been in space for almost five years and the original Sun Synchronous Orbit has now changed slightly such that the spacecraft will no longer be in eclipse for 35 mins every orbit.

The eclipse period has already reduced and will again become zero on September 8, 2018. This means that our usual autonomous switching between transponder on in eclipse and high-power telemetry when in sunlight will no longer be effective!

This schedule was originally planned to provide a very strong telemetry signal for schools to use during daylight hours and for amateur operation at night (and also at weekends and over holidays).

We have already experienced a short period of full sunlight but this time it looks like the spacecraft will be in this situation for more than eight months until sometime in April next year.

In addition to the additional thermal effect that will occur during this period, we also expect that the spin rate will increase. The reason for this effect is not yet fully understood but may be related to the amount of current flowing from the solar panels to the spacecraft bus being sufficient to cause a torque effect with the earth's magnetic field.

We have therefore decided to have A073/FUNcube-1 initially operate for alternate periods of one week in either safe or educational modes. This should enable us to evaluate whether the currents do affect the spin rate. Safe mode provides low power telemetry and education mode the usual high power telemetry. It will also enable an analysis to see whether the satellite becomes hotter or cooler in

each mode.

This will be a new experience for the spacecraft so the capture of the largest possible amount of telemetry remains an important tool for the team to have. We are very grateful to everyone who continues to upload the telemetry they have received to the Data Warehouse. It is invaluable.

In addition to A073/FUNcube-1, the FUNcube-2 transponder on UKube-1 remains operational and E088/Nayif-1 continues to operate autonomously with the transponder on when in eclipse and high- power telemetry in sunlight.

LAST MINUTE UPDATE: A073 is now in safe mode (low power beacon only, no transponder). We have set this mode as the satellite is about to enter a period of continuous sunlight (for about 9 months). There is more information at <https://funcube.org.uk/news/>

The plan is to change to education mode (high power beacon) next Friday.

[ANS thanks Jim, G3WGM and the FUNcube team for the above information.]

VUCC Awards-Endorsements for August 2018

CALL	01Aug	01Sep
N8RO	1051	1060
WI7P	829	835
WA5KBH	728	738
W5RKN	606	634
N6UK	568	626
N9EAT	428	550
WD9EWK	476	485
KE4AL	429	467
AA8CH	316	351
NS3L	325	350
W7QL	300	350
FG80J	200	253
N3GS	198	226
KE8FZT	200	225
N3CRT	New	200
AC9E	New	150
WW8W	103	128
AD0HJ	New	100
N7NEV	New	100
W4AQT	New	100

If you find errors or omissions. please contact me off-list at <mycall@mycall.com> and I'll revise the announcement.

This list was developed by comparing the ARRL .pdf listings for August 1, 2018 and September 1, 2018. It's a visual comparison so omissions are possible. Apologies if your call was not mentioned.

Thanks to all those who are roving to grids that are rarely on the birds. They are doing most of the work!

[ANS thanks Ron, W5RKN for the above information.]

2018 ARRL/TAPR DCC Preliminary Schedule Announced

Saturday Night Banquet

Towards A 21st Century Understanding of Earth's Upper Atmosphere:
The Value of Radio Based Amateur-Scientist Partnerships by
Dr. Philip J. Erickson, W1PJE, Assistant director & head of MIT's
Atmospheric and Geospace Sciences group at Haystack Observatory.
<https://www.tapr.org/dcc#banquet>

Sunday Morning Seminar

The Citizen Weather Station Project
by Nathaniel A. Frissell, Ph.D., Assistant Research Professor,
Center for Solar-Terrestrial Research, New Jersey Institute of
Technology, W2NAF.
<https://www.tapr.org/dcc#seminar>

The complete Technical & Introductory Forum Tracks schedule can be
viewed at <https://tinyurl.com/2018-DCC-Schedule>

DCC Online Registration is at:

<https://www.tapr.org/dccregistration.php>

[ANS thanks Mark, WB9QZB for the above information.]

----- Interns Create Visualization of NASA Space-Ground Communications

For the first time ever, people worldwide can get an inside look
into what it takes to enable communications for nearly 40 NASA
missions, thanks to a small team of college students.

NASA's Near Earth Network (NEN) leverages more than 15 antennas
across the globe to provide a downlink for critical space and Earth
science data collected by the agency's satellites. A new web-based
app called NEN Now shows, in real time, simulations of the
complicated maneuvers these antennas undergo to link with passing
satellites, following them from horizon to horizon as the data
streams to the ground.

"NEN Now opens a window to the public, sharing live updates about
which of NASA's spacecraft are communicating with the Near Earth
Network," said Barbara Adde, director of policy and strategic
communications for the Space Communications and Navigation (SCaN)
program office at NASA Headquarters.

"Curious about what NASA is studying? You can click on a link and
find out what research that spacecraft is collecting data for and
sending down to Earth right at that moment."

Not only will NEN Now help the public understand space-to-ground
communications systems, but the tool will help technical and project
managers monitor the status of the network in detail, providing
information such as the actual position of the antennas' dishes.

At SCaN's request, Goddard modeled NEN Now after a similar app,
called DSN Now, built by NASA's Jet Propulsion Laboratory in
Pasadena, California, for the Deep Space Network (DSN). The DSN
provides communications services for missions in deep space and is
managed by JPL.

Ryan Turner, a ground system manager, had an idea to efficiently and
effectively develop the NEN app at Goddard by leveraging the skills

of college students and utilizing experienced engineers to provide guidance.

"We started with three interns, who worked with the public engagement team, NEN engineers and the GMSEC to lay out a prototype," Turner said.

GMSEC is the Goddard Mission Services Evolution Center, which creates data system solutions across multiple projects and disciplines. "It gave everyone a sense of what would be possible if we created an operational version of the system."

Naje Fields was one of the first interns on the project in summer 2015. "Our biggest challenge for the prototype phase was to figure out how to get the data from the real-time status server at [NASA's Wallops Flight Facility in Virginia] to Goddard and into our app," she said. She and her partners, Kierra Harrison and Wallace Phillips, used a number of networking and security techniques to make it happen.

The prototype might have been ambitious for three college interns to complete over the course of 10 weeks, but it was very well-received, allowing Turner to establish a year-round program and to take on more interns in the following summers.

Those groups have worked on multiple projects, including adding commercial ground stations to NEN Now, implementing a NEN Now mobile app, designing the Space Network (SN) Now for Goddard's other communications network, and developing a 3D interface for NEN Now.

Both NEN Now and DSN Now have been incorporated into a larger app called SCaN Now. An additional application for SCaN's third network, the Space Network, is also being created by this intern team, rounding out the real-time status display capability for all three of SCaN's communications networks.

NEN Now is now available to the public at:

SCaN Now

<https://scan-now.gsfc.nasa.gov>

NeN Now

<https://scan-now.gsfc.nasa.gov/nen>

NeN Home

<https://www.nasa.gov/directorates/heo/scan/services/networks/nen>

DSN Now

<https://eyes.nasa.gov/dsn/dsn.html>

DSN Home

<https://deepspace.jpl.nasa.gov/>

[ANS thanks NASA for the above information]

**AMSAT Board of Director Elections Corrected Ballots Due
September 15, 2018**

Corrected ballots were mailed and members should have received them. The new ballots, labeled "CORRECTED BALLOT 7/20/2018" are printed on yellow-colored cardstock.

Using the Yellow Ballots, please vote for no more than three of the

2018 candidates:

Tom Clark, K3IO
Mark Hammond, N8MH
Scott Harvey, KA7FVV
Bruce Paige, KK5D0
Peter Portanova, W2JV

Candidate biographies can be viewed at:
<https://www.amsat.org/bios2018/>

The Directors positions will go to the three candidates receiving the highest number of votes. In addition, there will be two alternate members chosen, based on the next highest number of votes received.

Ballots must be received at the AMSAT office by September 15, 2018 in order to be counted. Those sent outside North America were sent via air mail. If you have not received your ballot package in a reasonable time for your location, please contact the AMSAT office. Completed ballots should be returned as promptly as possible, and those from outside North America preferably by air mail.

[ANS thanks AMSAT for the above information.]

Call for Volunteers, ANS Seeks Rotating Editors

The AMSAT News Service (ANS) is seeking volunteers to serve as rotating editors for its weekly newsletter.

Editors work on a rotating schedule, each taking a different turn editing a specific week's newsletter as scheduled by the ANS Editor in Chief. Editors support each other by seeking and reporting to the Editor of the week, information and resources of interest to the AMSAT community. The number of newsletters assigned will be dependent upon the number of available editors at any given time. The average editor can expect to spend, on average, 4-5 hours for each newsletter, dependent on available material. Prospective editors are required to be AMSAT members in good standing and have a genuine interest in satellite operation and an understanding of AMSAT's mission. Former editing experience is a plus but not required.

If interested, please submit an inquiry, including your contact information to ans-editor@amsat.com.

[ANS thanks the ANS editors for the above information]

Upcoming Satellite Operations as of 8/29/2018

+ DM56, DM57, DM58, DM59 - September 1-3, 2018
Ron, AD0DX, is heading out again. This time, he will be operating in DM56, DM57, DM58, and DM59. Updates will be posted on Twitter, publicly viewable at <https://twitter.com/ad0dx>.

+ Next weekend, (9/8 and 9/9) is the Boxboro (Mass) ham radio convention, the biggest in New England. There will be an AMSAT booth there, and in addition, the Nashua Area Radio Society will be holding an exposition for young people, which will include a big satellite station. Please listen for special event station N1T or club call N1FD during both days, and possibly testing on Friday, and be nice if there are newbies trying for their first contact! In addition, the

AMSAT forum will take place all Sunday morning and will include demos of satellite contacts using a handheld and an HT. Please try for QSOs with on FM satellites Sunday morning from Bob Hayes KB1SWZ (not known if he will use a special event call sign). KE4AL, please post on the the AMSAT web site if you can! Thanks all! 73, Burns Fisher, WB1FJ
AMSAT Fox-1 Flight Software Member, Nashua Area Radio Society

+ AMSAT-EA Special Event - AM1SAT - September 10-17, 2018
As part of the IV RadioHam Fair IberRadio 2018 activities, AMSAT-EA members, using the special event call sign AM1SAT, will be activating 14 grid squares across Spain from September 10th to September 17th.

AMSAT-EA is offering an AM1SAT Special Award in two categories: SILVER and GOLD. More information, to include rules and log submission instructions, is available on QRZ:
<https://www.qrz.com/db/amlsat>

Northern Michigan (EN76, EN85, EN86) - September 15-18, 2018
Chris, AA8CH is heading back to northern Michigan and Drummond Island as follows:
September 15: EN76, EN85
September 16: EN85, EN86
September 17: EN85, EN86
September 18: EN76, EN85

Anyone who missed Chris from N8R in July and/or needs any of these grids can send me an email (see QRZ) and he'll keep you in the loop for expected passes.

[ANS thanks Robert, KE4AL for the above information.]

ARISS News

+ Upcoming ARISS Contact Schedule as of 2018-08-07 18:00 UTC
Integrierte Gesamtschule Osterholz-Scharmbeck, Osterholz - Scharmbeck, Germany and Gymnasium Soltau, Soltau, Germany, direct via DN3HB and DN5ABG. The ISS callsign is presently scheduled to be DP0ISS. The scheduled astronaut is Alexander Gerst KF50N0.
Watch for new contact time.

Study Hall, Lucknow, Uttar Pradesh, India, telebridge via K6DUE.
The ISS callsign is presently scheduled to be NA1SS. The scheduled astronaut is Serena Aunon-Chancellor KG5TMT.
Contact is a go for: Wed 2018-09-05 08:05:53 UTC 33 deg.

Mendez Fundamental Intermediate School, Santa Ana, CA, direct via AA6TB. The ISS callsign is presently scheduled to be NA1SS.
The scheduled astronaut is Ricky Arnold KE5DAU.
Contact is a go for: Thu 2018-09-06 16:49:52 UTC 81 deg.

+ Completed ARISS Contacts
About Gagarin from Space conducted A Session of Radio-Love Communication with students and aspirants in G. Kursk. Russia, direct via RV3DR. The ISS callsign was RS0ISS and the scheduled astronaut was Oleg Artemyev. The contact was successful at 2018-08-25 08:19 UTC. Congratulations to the students and Oleg!

[ANS thanks Charles, AJ9N for the above information.]

Satellite Shorts From All Over

+ The AMSAT Office will be closed through September 4th. It will reopen on Wednesday, September 5th.

[ANS thanks Martha Saragovitz for the above information.]

+ The Symposium Schedule for the 2018 AMSAT-NA 36th Annual Space Symposium and General meeting has been published and can be viewed at: <https://www.amsat.org/symposium-schedule/>

[ANS thanks Robert, KE4AL for the above information.]

+ ARRL Youth Satellite Operators get News Coverage

Three youthful members of the Montgomery Amateur Radio Club were recognized by the Montgomery Advertiser as avid amateur radio satellite operators. Bryant Rascoll, 14, recently received the 2018 Bill Pasternak Memorial Radio Newline "Young Ham of the Year. Warren Whitby, 16, received this year's ARRL "Alabama Outstanding Youth Ham Award" in Huntsville. Marissa Robledo, 11, was been named first runner up for the Alabama Outstanding Youth Ham Award. The complete news story can be read at <https://tinyurl.com/three-youth>.

[ANS thanks JoAnne, K9JKM for the above information.]

+ New Distance Record FalconSat-3 Claimed

A new @AMSAT distance record is claimed via the FalconSat-3 digipeater: 2,955 km. W8LR in EM79tm <-> KB6LTY in DM14jl on 26-Aug-2018 at 00:47 UTC.

[ANS thanks W8LR for the above information.]

+ Petition to save WWV/WWVH

The National Institute of Standards and Technology (NIST) has eliminated funding for the continued operation of time/frequency standard stations WWV and WWVH in its Fiscal Year 2019 budget. WWVB, on 60 kHz, which provides time data for so-called "atomic clocks," would continue to be funded.

One petition started on the White House's "We the People" petition site calls for restoration of funding for these two radio stations. It needs at least 100,000 electronic signatures by mid-September to generate a response from the White House. The petition can be found at:
<<https://petitions.whitehouse.gov/petition/maintain-funding-nist-stations-wwv-wwvh>>
(As of now, needs just over 90,000 more signatures by September 15)

[ANS thanks CQ Magazine for the above information.]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the stu-

dent rate for a maximum of 6 post-secondary years in this status.
Contact Martha at the AMSAT Office for additional student membership
information.

73 and Remember to help keep Amateur Radio in space,
This week's ANS Editor,
Frank Karnauskas, N1UW
nluw at amsat dot org

--

-73, Joe Spier, K6WA0
President, AMSAT